IS CRANIOTOMY UPON THE LIVING FŒTUS EVER JUSTIFIABLE?

BY

Compliments ROBERT B. DIXON, M.D.

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IS CRANIOTOMY UPON THE LIVING FŒTUS EVER JUSTIFIABLE ?

BY ROBERT B. DIXON, M.D., OF BOSTON.

I WOULD say in the beginning, that this paper is from a purely medical and non-ecclesiastical point of view; and in no way have I, in dealing with the subject, touched upon it from an ecclesiastical standpoint.

An attempt to look through the works that have been published during the past fifty years upon the justifiability of the operation of craniotomy upon the living fœtus, taught me that the contributions upon this subject were indeed numerous, and that the topic had been dwelt upon by men eminent the world over. Still this subject, important as it is, remains in an unsettled condition. It is not with the idea that I can add anything of value to the subject that I deal with it; but I do so more especially because in a paper recently read by Dr. Busey, of Washington, the strong statement, which is the title of the article, is made, that "Craniotomy upon the Living Fœtus is not justifiable." What I shall attempt in this paper will be to collect such strong conclusions as will clearly show that craniotomy, in certain instances, is vindicable by reason, and, in these cases, is the only operation that can be justifiably done.

The question of destroying a living fœtus is a most serious one, and every means should be taken to obviate the necessity for the operation. In large cities, where there are usually two or three practitioners skilled in the various operations of abdominal section, where trained assistants and nurses are at hand, and where all the instruments and appliances necessary to the operation can be obtained at short notice, then, perhaps, in most cases where craniotomy would usually have been

performed, abdominal section might be chosen if the woman is in a suitable condition to undergo the operation; that is, labor has not commenced or is just starting, the woman is in no way exhausted, and there is positive evidence that the child is alive. Supposing, however, that a country practitioner is called to a woman in labor, and, from some one of the many obstacles which may exist, he finds it impossible to deliver the woman *per vaginam*, without diminishing the diameters of the child's head, what is he to do? Would it be justifiable for him to attempt the difficult operation of abdominal section, an operation which, in all probability, he has never seen performed, or knows anything more about than what can be learned from text-books? One might say that he should send for some practitioner who can do the operation; but the delay thus necessitated would, with little doubt, result in the death of the child, and get the woman into such an enfeebled condition, that her life would also be imperilled.

The obtainable statistics of recoveries after the various methods of abdominal section, for removing a living child, are those computed by men, who, although they but rarely open the abdominal cavity to remove a fœtus, are almost daily removing the various kinds of tumors by abdominal section. Supposing the general practitioner should try his hand at this operation, an operation which could hardly be called for more than once or twice during his lifetime, how then would the statistics stand if they could be collected? In all probability, if the woman did not die from hæmorrhage during the operation, she would hardly survive the after-coming shock and exhaustion, and very likely in such cases as these, the child would be extracted in a moribund condition.

That craniotomy, an operation that existed previous to the time of Hippocrates, has been time and again performed when it ought not to have been, in cases which, with the present knowledge of obstetrical sur-

gery would be treated differently, there is not the least doubt. Many fœtal lives that were destroyed in cases of slightly contracted pelves, or when the diameters of the fœtal head were a little above the average, or there was premature ossification of the bones of the head, might have been saved by the forceps or version. There are but few eminent obstetricians with a large consultation practice, who have not been summoned by a brother practitioner to do craniotomy, and found, after thorough examination, that there was a possibility of extracting a living child by version, and, making the attempt, have succeeded in so doing. In our city there are several obstetricians who have had experiences of this kind.

Now, right here comes up the important subject of version, which will save many lives, and in slightly contracted pelves, obviate puncturing the fœtal head till it becomes an absolute necessity. For many years Dr. W. L. Richardson, of Boston, has strongly advocated version in cases of slightly-contracted pelves, where failure in delivery has resulted from the application of the forceps. He has had marked success in many cases which would have come to craniotomy if version had not proved beneficial. If turning can be accomplished in slightly-contracted pelves with a good degree of success, ought it not to be the procedure in all such cases?

There is a good probability, if the operation is done early and skilfully, that a living fœtus may be extracted. If the head cannot be removed, then craniotomy can be done; and it has been shown that craniotomy upon the after-coming head is not as difficult a manœuvre as has been thought. The successful termination, by version, of many of these cases which the attending physician has made up his mind must come to craniotomy, strongly brings this operation forward as a measure which is, indeed, sound and scientific.

Would it be considered good judgment to do Cæsarean section or one of its substitutes, for the removal of a

child with a hydrocephalic head? I should say not. Supposing a physician is called to a woman in labor with good pains. Upon examination, and the lapse of time, he learns that for some unknown reason the head of the child does not descend. The woman is etherized, and the operator's hand inserted into the vagina and through the cervix, so that the child's head can be taken into it and thoroughly examined. The introduction of the hand will demonstrate to a practitioner of even moderate experience, the presence or absence of pelvic contraction of any moment. If it is determined that the pelvic diameters are normal, or nearly so, and that the child's head is hydrocephalic, would any one say that craniotomy ought not to be done and is the only suitable operation? The woman's pelvis is all right, as it would most likely be, and the child can be removed after the head is perforated, with less trouble than by forceps or version when these operations are called for. The risk of the soft parts of the woman being injured by pressure, as in cases of severely contracted pelves, is absent, and the percentage of recoveries after the operation could not be otherwise than very large. Most certainly, in a case of this kind, abdominal section in none of its varieties is justifiable; for most assuredly, the death of a diseased fœtus whose chances, if delivered safely, of survival are the slenderest, cannot be compared with the recovery of a woman, healthy in all her parts, and who in every way is constituted to continue having children, which she is very likely to do.

A physician in attendance upon a woman who cannot be delivered other than by craniotomy or abdominal section, who, in no way, is sufficiently familiar with the operation of opening the abdomen, and who, if he made the attempt, would probably lose the mother and quite likely the child also, could hardly be considered as acting in a sound manner in attempting anything of the kind. If the operation is not done, then craniotomy is the only resort; otherwise, both the mother and child will be lost.

A few statistics compiled from the various operations which have been performed by eminent men for the removal of the child by Cæsarean section, or some one of its substitutes, laparo-elytrotomy and Porro's operation, will be of the greatest value. The results from these operations during the past few years, under the improved and more skilful methods of operating, have been most pronounced. Out of something over 1,500 tabulated cases of Cæsarean section, occurring in England, Germany, France, Belgium, Italy and America, the average mortality was fifty-three per cent. Dr. Harris, in the *Obstetrical Journal* for February, 1872, reports seventeen cases which were operated upon the first day of labor. Out of these $73\frac{9}{18}$ per cent of the women recovered and $86\frac{2}{3}$ per cent of the children were saved. Of all the cases operated upon in France for fifteen years up to 1861, of those operated upon early, while the strength of the patient was still good, 81 per cent of the women recovered; where the patient, however, was in a state of exhaustion when the operation was commenced, only 19 per cent recovered. Up to 1876, when Spæth [1] operated, every Cæsarean case in a century had proved fatal in the Lying-In Hospital in Vienna, and a like fatality had followed for nearly as long a period at the Maternité at Paris, till Professor Tarnier operated in 1879.

Dr. R. P. Harris,[2] of Philadelphia, tabulated 59 cases of Cæsarean section occurring in the United States, between 1822 and 1870, in which there were thirty-one recoveries and twenty-eight deaths. The results to the children were that twenty-six were born alive, thirty-two were lost, and the result to one was not stated. The prevailing causes of death in the women were exhaustion and peritonitis, and in the children the causes assigned were principally long labor and some operative procedure as craniotomy.

[1] American Journal Medical Science, p. 509, October, 1879.
[2] American Journal Obstetrics, Vol. iv. 1872.

Of eleven cases of Cæsarean section, occurring during the past few years, that I have tabulated, nine women and eight children were saved. Most of these operations occurred very early. Winckel has performed fourteen Cæsarean operations, and saved six mothers and nine children. Previtali, of Italy, lost seventeen out of nineteen cases. But two of twenty-seven were saved in Naples, and Dr. Belluzzi had twelve operations, in one of which the mother recovered. Spæth,[3] of Vienna, has reported four cases of Cæsarean section which were under his observation between 1852 and 1874, all of which ended fatally. He considers hæmorrhage the chief source of danger.

Dr. Harris quotes the comparative results of the Cæsarean operation in the two countries, as follows: Great Britain and Ireland, cases, 106; fatal, 88; children saved, 60. United States, cases, 60; fatal, 28; children saved, 27. Dr. Harris' twenty-four cases reported in the *American Journal of Medical Sciences* for April and July, 1878, and January, 1879, in which the operation was performed within twenty-four hours from the beginning of labor, show that of these six died and eighteen were saved, about 75 per cent. M. Pehan Du-feillay has shown that 81 per cent of women operated upon early and before the strength was exhausted, recovered.

Lusk says that Cæsarean section is chiefly justifiable in cases in which craniotomy and the delivery of the child by the natural passages involve the life of the mother in still greater peril. It is indicated, therefore, in extreme degrees of pelvic contraction, in the case of solid tumors which encroach upon the pelvic space, and in advanced carcinomatous degeneration of the cervix.

Statistics on Porro's operation give beneficial results. Champrinniere[4] reported four cases in which two women

[3] Wiener Medizin is che Wochenschrift. 1878.
[4] Annales de Gynecologie, April, 1880.

and all the children were saved. In 1879, Dr. Harris tabulated 37 cases of Porro's operation with 17 recoveries and 20 deaths. Spæth considered the results of Porro's operation as very promising. The operation is considered as safer than Cæsarean section, and also safer than craniotomy in extremely contracted pelves. It is being rapidly adopted on the continent, and with a marked degree of success.

In the *American Journal of Medical Sciences*, April, 1885, is a review of the report of Dr. Clement Godson, of all of the Porro's operations up to the beginning of the year 1885 — 164 cases in all. There were 109 cases of Porro's, many of them very unfavorable, with 46 recoveries. Müller's modification was used in 41 cases, with 21 recoveries. From the 164 women, 166 children were extracted; of these, 129 were living and 37 were dead, or moribund. Dr. Godson thinks it but just to the operation to reduce the 164 cases to 147, by excluding three moribund cases operated upon to save the children, and fourteen in which the stump was dropped in, proving fatal in ten cases. Those cases operated upon in hospitals have done better than those in private houses. When the patient is prepared beforehand, and the time has been carefully selected, the results from the hospital operations are very encouraging.

Of 134 cases of Porro's operation reported by Dr. Godson [5] in 1884, the maternal mortality was fifty-five and ninety-seven hundreds per cent. Carl Braun had a mortality of forty per cent, while Spæth and Gustave Braun had a mortality of fifty per cent.

Laparo-elytrotomy has given better results than Cæsarean section, for by it the dangers of peritonitis and shock are reduced to a minimum, and there is not the likelihood of septicæmia showing itself. There is, however, great risk of hæmorrhage from the vascular supply to the vaginal walls, and also the risk of vesico-

[5] British Medical Journal, 1884.

vaginal fistula. Garrigues[6] says, "The incision of the vagina may be made almost safe by using the cautery, and by tearing instead of cutting." The earlier operations by Jorg and Bandelœque, were abandoned on account "of the severe hæmorrhage, and the children were removed by Cæsarean section in order that their lives might be saved." Of eleven cases collected by Kinshead,[7] of Dublin, seven died, giving a mortality of 63.3 per cent. In two of these the operation was abandoned and Cæsarean section was substituted, while in a third, the operation was complicated by the ligating of the internal and common iliac arteries. Of the remaining eight cases, four died, giving a mortality of fifty per cent. The death in some of these cases cannot be attributed to the operation. In the case of Dr. Thomas, in 1870, the woman had pneumonia, and was in an almost moribund condition at the time the operation was commenced. Two cases reported by Dr. Skene and one by Hime were also in a severe state of exhaustion.

Barnes gives, under three heads, the following indications for the performance of craniotomy:

First. Such contraction of the pelvis, or soft parts, as will not give passage to a live child, and where forceps and version are of no avail. These may be due to distortion of the pelvis, which is most frequent at the brim; to tumors — bony, malignant, or ovarian — encroaching upon the pelvic cavity; to growths, fibroid or malignant, in the walls of the uterus; to cicatricial atresia of the vagina or cervix; to extreme spasmodic contraction of the uterus upon the child, forbidding forceps or turning; where obstruction in pelvic contraction ranges from 3.25″ maximum to 1.50″ minimum.

Second. Cases where the obstruction is due to the child, as face presentation, locked twins and hydrocephalic head.

Third. Condition of danger to the woman, render-

[6] Gynæcol. Jour., p. 223, 1878.
[7] Dublin Journal Medical Science, Vol. lxviv, 1880.

ing it expedient to deliver, as rapidly as possible. Some cases of rupture, convulsions, hæmorrhage, or great exhaustion, where delivery is urgent and the cervix undilated.

The mortality in craniotomy has been shown to be about one in five, but it would not be as high as this even if the operation was not attempted in cases where the antero-posterior diameter of the pelvis is below two and a half inches. The high percentage of recoveries after recent Cæsarean operations comes from the cases being selected, and from the operation being performed upon the woman during the early hours of labor, or previously to labor beginning, when the patients are in a sound condition and free from exhaustion. The opponents of craniotomy in their collection of statistics do not use this same method in the selection, for tabulating, of craniotomy cases, but take all the cases together irrespective of the time of the operation or the condition of the patient. If statistics were obtainable upon those cases of craniotomy that were performed early, the patient being in a good condition, then the percentage of recoveries after craniotomy would be very much larger.

Recent craniotomy statistics are those of Dr. Adolph Merkel,[8] of one hundred craniotomies at Leipsic from 1877–1882, with a mortality of eight per cent. Excluding a case of ruptured uterus, determined before the operation, and the mortality would have been but six per cent. Bidder,[9] of St. Petersburg, did not lose a single woman out of thirty-two craniotomies performed from 1872–1877. Spiegelberg had a mortality of sixteen per cent in fifty-eight cases. Rokitansky,[10] Jr., published an account of fifty-two successful craniotomies occurring in Braun's wards.

In most of the instances where craniotomy is performed, the child is dead before the operation is called for. Generally, other operations for extraction are

[8] Archive für Gynäkologie, 1883.
[9] C. Braun's Lehrbuch d. g. Gynäkologie, 1882.
[10] C. Braun's Lehrbuch, d. g. Gynäkologie, 1882.

continued till the last moments of the child's life. Very likely the forceps will be first applied, but failure with these will cause the practitioner to attempt version. He may be successful in turning the child, but not in extracting the head. If not, then there is no other alternative than craniotomy. In cases where the pelvis is not contracted much, the danger to the mother, if she is in no way exhausted when the operation is begun, is very slight. If a woman has once had craniotomy performed, she should be especially urged to have premature labor induced if she should become pregnant again, and if there is but slight narrowing of the pelvis she may give birth to a viable child.

Dr. Goodell[11] considers craniotomy justifiable in certain instances, for living children are sometimes born afterwards. He does not consider it wise to wait till the child is dead, but operates as soon as he thinks the operation called for. He believes in leaving the question of propriety of operating upon a sick woman to herself and her husband, and recommends that physicians will consider the question in a more logical manner, if they will bring it home to their own firesides.

The dangers from craniotomy are much less than from Cæsarean section, Porro's operation, or Laparo-elytrotomy, excepting in cases of very contracted pelves. In cases that have gone on for some little time, the woman may be past recovery before the operation is commenced.

Dr. Kidd[12] in the discussion upon a paper on "Craniotomy and its Alternatives," read by Dr. Kinkead before the Dublin Obstetrical Society, said: "Authors variously mention antero-posterior diameters of from three and a half to three inches or less, as the smallest through which a living child can pass. At the bedside I believe this difficulty can never arise, where you can have opportunities of comparing the size of the

[11] Philadelphia Medical Times, 1883.
[12] London Journal Medical Sciences, 1880.

head lying above the pelvis itself, and can apply the forceps once or twice, besides having the assistance of a person in whose judgment you have confidence. If we are once satisfied, after due and careful trial, that we cannot bring the head through in an unmutilated condition, and that delivery can be easily and safely effected by the operation of craniotomy, I maintain that it is our duty to lessen the head, and to deliver the woman. I say this, viewing the question from a purely obstetric point of view, which is the only one that we here, and in this Society, are called on to consider."

In addition to Dr. Kidd's recommendation, I should say, if the woman is exhausted, it would be better to attempt version in these cases if there should be failure in delivery by means of the forceps, before doing craniotomy. If, for some reason, it was found to be impossible to turn the child, then craniotomy might be done. But if the child can be turned, it might be extracted where delivery by the forceps had failed, and if it could not be extracted, then the after-coming head can be perforated. Dr. Kidd does not consider it our duty, even with so narrow an antero-posterior diameter as two inches, to perform Cæsarean section.

Dr. E. B. Sinclair, president of the Dublin Obstetrical Society, said, we should not cut open a woman with a slightly contracted pelvis, when we are unable to deliver with the forceps, but craniotomy should be done, by which operation she would have hardly any chance of losing her life. He further says, "But when we come to cases of extreme narrowing, where craniotomy cannot be performed without lacerating the parts, and where we find from examination that the operation would be so seriously dangerous to the woman that in all probability she would die under or after it, then Cæsarean section ought to be performed in preference to craniotomy."

Dr. Parish, of Philadelphia, said, craniotomy does not require so much skill as the Porro or Cæsarean operations. In these latter, not only is a trained sur-

geon required, but also several skilled assistants; but the delivery of a woman has often to be accomplished by a single physician remote from help. An operator may perform craniotomy without assistance as successfully as with it. A practitioner who has scruples against doing craniotomy when justly called for, and who for many reasons is not so situated as to do Cæsarean section, or have it performed, should also have some scruples about leaving a woman to die undelivered.

With the present knowledge of Cæsarean section, with increased experience in the time of choosing the operation and the greater skill with which it can be accomplished, it would seem that this operation should be chosen early in labor in those cases of very narrow pelvis, where the woman is still in a good condition, and is not as likely to suffer from hæmorrhage as she would be if exhausted from a long and tedious labor. If, for some reason, in those cases of very narrow pelvis, the labor has been prolonged, and the woman is tired out and exhausted, then the uterus and ovaries should be removed, or perhaps, Laparo-elytrotomy be done, there being less risk of severe hæmorrhage than from Cæsarean section.

If the contraction of the pelvis is not excessive, then craniotomy should be done.

Craniotomy is justifiable, according to the most prominent obstetricians throughout the world, when there is a failure by version or forceps in extracting the child, when the woman is exhausted, and when the pelvic diameters are such that only a mutilated fœtus can be drawn through. The woman's chances are much better after craniotomy for slight narrowing of the pelvis, and the percentage of recoveries is very large. It is a difficult matter in the choice of operations to determine, with any degree of accuracy, the pelvic diameters while labor is going on. Craniotomy should be performed, however, if the operator feels reasonably sure that the diameters are above 3 by 2½ inches.

Prof. Isaac E. Taylor,[18] in a paper read before the New York Academy of Medicine in 1876, says that Cæsarean section should not be performed where the contractions or deformity of the pelvis are less than 1¾ inches antero-posterior, and 2½ to 3 inches in the transverse diameter, unless some other complications or circumstances exists or presents.

Lusk says: "If the life of the mother is at stake, and the sacrifice of the child is necessary to her preservation, few would dispute, at the present day, the superiority of the mother's claim to existence."

My investigations lead me to form the following conclusions:

(1) It is our duty to save the child as well as the mother, when in each individual case it is practicable and possible.

(2) Craniotomy should be performed when the child cannot be extracted by forceps or version; the woman is in a state of exhaustion, the pelvic diameters are above 2½ by 3 inches, the case has dragged along for many hours, or perhaps for several days, and it is the wish of the woman and her husband that the operation should be done. In a case of this kind, it would be wise to attempt version first, and then, if necessary, perforate. If the woman's health is not sound, her pregnancy is complicated by heart disease, phthisis, or uterine cancer; then it is a very difficult point to decide whether craniotomy or Cæsarean section should be performed, and this question can only be decided upon the merits of each case.

(3) When the conjugate diameter is below 2 or 2½ inches, or there is some organic obstruction that cannot be pushed out of the way or removed by tapping, as an ovarian tumor, then, especially if early, Cæsarean section or one of its substitutes should be performed. The results from Porro's operation and Laparo-elytrotomy are so encouraging, that in many cases one of them might be selected instead of the old Cæsarean section.

[18] Transactions New York Academy Medicine, 1876.

(4) When the antero-posterior diameter is above $2\frac{3}{4}$ inches, forceps may be tried, and, if unsuccessful, then version should be attempted; and if the operator is unable to extract the after-coming head, he should perforate it. If in any of these cases the malformation is recognized sufficiently early, then the induction of premature labor is called for.

(5) Under the most extenuating circumstances only, should craniotomy be attempted when the antero-posterior diameter of the pelvis is less than $2\frac{1}{2}$ inches.

(6) Craniotomy upon the living fœtus is justifiable when the practitioner is not familiar with abdominal section; when he is remote from help and has not trained assistants, or the proper instruments required for the latter operation; in those cases where it is the desire of the woman that it should be done in preference to abdominal section; when the woman is unconscious from disease or drugs; when the child's life has been imperilled by forceps or version, or the child is deformed or not viable; in cases where the use of the forceps has been delayed, the soft parts have become badly swollen and the head is impacted; when the uterus is in a state of tonic contraction, so that version cannot be done, and so much force is necessary in the application of the forceps that the life of both the mother and the child will be greatly endangered; when there is uncertainty as to whether the child is alive or dead, and longer delay will expose the mother to great peril; when there is but slight narrowing of the pelvis, after forceps and version have been tried, for the woman may have a live child afterwards, at term or prematurely; when the child possesses a hydrocephalic head; when there are locked twins; in certain cases of face presentation; and in those cases of version where by the assistance of the forceps it is impossible to deliver the after-coming head of the child.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION OF OBSTETRICS AND GYNÆCOLOGY.

ROBERT B. DIXON, M. D., SECRETARY.

April 15, 1885. Dr. James R. Chadwick in the chair.

Dr. Robert B. Dixon read a paper entitled

IS CRANIOTOMY UPON THE LIVING FŒTUS EVER JUSTIFIABLE?

Dr. J. P. Reynolds said that he did not find himself inclined to dissent materially from the reader's opinions. It is one thing to give theoretical approval to abdominal section, and quite another to make it a feasible alternative in the presence of obstetric emergency. In the interest of charity, it is well to bear also in mind, as Goodell has forcibly urged, that a mode of practice may be highly commendable, when adopted by a man of limited experience, without trained assistants or instruments, which would be simply criminal in a hospital surgeon, with every resource at hand. Widely as opinions and practice vary in regard to craniotomy, something will be gained, if men who differ, fairly appreciate each other's position. It is often untruly stated, that craniotomy is proscribed merely because baptism, which the mother has received, has not been administered to the child, but the honest scruple is rather, whether any one has the right to decide which of two equally unoffending persons shall be destroyed; and still more, whether crime may be deliberately committed, for the attainment of possible good. It is to be desired that craniotomy be never lightly undertaken, and that in adopting it at any time we appreciate the very grave responsibility which the operation involves: and to this end the horror with which others regard it may not unprofitably be borne in mind.

Dr. Benjamin Cushing remarked that practically the moral aspect of this question cannot be ignored.

If, as Dr. Busey seems to think, the danger to the mother is almost the same in craniotomy and abdominal section there can be no question which operation should be chosen, but this view he did not think correct. Craniotomy in itself is neither difficult nor dangerous. The danger is in waiting until the woman is exhausted, or in the narrowness of the pelvic outlet which makes the case unsuitable for craniotomy. There are cases of slight contraction of the outlet when the child cannot pass entire, and craniotomy will reduce the labor to a normal one. A case was cited in illustration. A healthy young woman, in a first labor was seen in consultation. It being evident that nature would not effect delivery, and the child being dead the head was opened. The mother did well. Some years afterward, the same woman was again seen in consultation. She had been a long time in labor when the pains suddenly ceased and the woman was sinking. Rupture of the uterus was found and the woman was delivered by emptying the head through the foramen and turning. Still later the same woman asked Dr. Cushing to attend her in a coming confinement which was expected daily. He directed the patient to give him early notice of labor. The os being dilated and pains well established, the head was opened and emptied and the labor reduced to a normal although hard one. The woman did well. In this case, experience having shown the probable impossibility of a living child by natural means, and the safety to the mother of craniotomy, the treatment was to be decided on moral grounds. As the speaker did not believe that the life of the mother should be put to any considerable risk to save the life of an unborn child he had no hesitation as to the proper course to follow.

Dr. A. D. Sinclair considered it very important that we should interfere early in those cases which call for craniotomy or abdominal section. Bad results follow from either if the operation is commenced late in the case, when the woman is tired out. The opera-

tion of craniotomy is one of the oldest with which we are familiar, and it will continue, without doubt, to be performed till all men are familiar with abdominal section, and even then in certain cases, it will be wisely done. The operation will depend on circumstances, and men will do the best they can under these circumstances. A skilled operator in hospital practice with competent assistants and necessary instruments may open the abdomen with a fair prospect of saving both the mother and the child. Craniotomy is called for in cases of narrow pelvis, and when the head of the child is very large or prematurely ossified. Operators must do the best that they can, and with increased experience will reduce the demand for craniotomy to those cases which call for that operation and none other.

Simpson says the old operators performed craniotomy in preference to using forceps, and, in contrasting the cases with those occurring in Germany where the forceps were being frequently used, the results were bad. Now forceps and version largely take the place of craniotomy. The life of the mother is of more value than that of the child, and should be saved in those cases where both would be sacrificed if craniotomy was not performed. Early interference is an axiom that we should not lose sight of.

Dr. Fifield said that when he began practice craniotomy was the rule, if the head was not easily reached, that is, an ear easily felt; now it was the exception. Short forceps were wholly used, and if delivery could not be effected by their aid, then craniotomy was performed. He brought the first pair of long forceps to Weymouth, where he first began practice, and since that day a decided change has taken place, and now craniotomy is very rarely done. He has not performed a craniotomy in twenty years, but should say it will be done more or less forever. When Utopia shall have become reality, and the Lost Continent shall have been found again, and both the island and the continent shall be ruled by the same laws, then and only then, shall

the perforator and the blunt hook be cast into the furnace, and be known no more. In those happy lands every village shall have its hospital, every hamlet its Thomas, the very breezes will be aseptic.

Craniotomy is an operation of circumstances, and much depends upon the operator whether it will be performed. If one has not had a large experience in the use of the forceps, he may say craniotomy must be done. Even if one has had a large experience in the use of forceps we may decide that it would have been better to perform craniotomy than to have used forceps after a bad delivery shall have been shown to have resulted to the woman from the latter.

A man's conscience may sway him one way or the other, and if he is without assistants and proper instruments, he may do craniotomy and do it wisely. To a person with a quick conscience craniotomy will be a last resort. Church dogma most certainly should not influence the physician. One might be swayed by the convictions of the people interested. If they were Catholics he would enter into their feelings, if he were among Protestants then it would be different. Not that the physician would willingly sacrifice *any* infant life, but that if his conviction was that craniotomy was the safest and best, he might address himself to the task with greater celerity, without taking the question of other methods into consideration. A child to a Catholic family is always bade welcome, but it is not always so to a Protestant. No one could refuse to do craniotomy in certain cases as in some varieties of deformed pelves, etc.

Dr. M. A. Morris remarked that the doctrine of the Roman Catholic Church is opposed to craniotomy. The Catholic Church teaches that you shall not violate the fifth commandment, "thou shalt not kill." The end does not justify the means. You are not permitted to do an evil act that good may come of it.

Dr. Capellman who is considered an authority in the Catholic Church, teaches that each individual

human being has a right to live,—the child has a right to live as well as the mother. A child *in utero* cannot be a "wilful aggressor" or violator of laws, and therefore cannot forfeit its right to live. Craniotomy is not a sure means of saving the mother; by it one life is certainly destroyed, and frequently both lives are lost. By Cæsarean section the greatest number of *lives* are saved, and a greater number can be saved now than formerly, owing to improved abdominal surgery. He finds the statistics of a number of operators show that on an average over fifty-eight per cent of mothers were saved after Cæsarean section, and more than fifty-eight per cent of the children were saved (Kayser 70). (Villeneuve 72). By craniotomy all children are lost and many mothers.

Dr. Reynolds asked Dr. Morris what he should do if the woman refused to be operated upon.

Dr. Morris replied that it was considered the duty of the woman to consent.

Dr. Sinclair asked the date of Capellman's book.

Dr. Morris said he believed the book was published in 1879.

Dr. Reynolds inquired if there had not been some change in the teachings of the Catholic Church, of late, regarding craniotomy.

Dr. Morris replied that there had been no change that he was aware of.

Dr. Reynolds expressed his surprise that any weight is allowed to the question of the mother's assent. From the standpoint of the last speaker, does her refusal alter the duty of the accoucheur? It may not be generally known, that according to statements apparently trustworthy, a decree lately promulgated, in response to an appeal for guidance, strictly forbids craniotomy to all Roman Catholics so long as the child is alive.

Dr. Wm. L. Richardson said that he was very glad that the subject had been presented, and in so satisfactory and able a manner, for up to the present time the statement made by Dr. Busey in his paper

had gone unchallenged. The introduction of antiseptic precautions in all operations, the favorable results which are being obtained by the performance of Porro's ovaro-hysterectomy and Thomas's Laparo-elytrotomy are rapidly limiting the number of cases in which the operation of craniotomy is demanded. There are, however, cases, as the reader has stated, in which the patient is in such a condition that no operator would feel justified in attempting either of these operations, or the more serious one of Cæsarean section. To do the operation would mean to kill the patient. Nor would an unskilful operator, wholly unfamiliar with the methods of procedure, and so placed that he could not obtain either competent assistants, or the requisite means for a proper performance of the operation, be justified in attempting what could only result fatally to the mother.

There are other cases in which none of these operations, performed by the most skilful operator and with every possible convenience at hand, would be of the slightest avail. In breech presentations, where all of the child has been born except the head, and it is then discovered that the head is unusually large or preternaturally ossified, of what avail are any of these operations which involve an abdominal section? The child is no longer within the uterine cavity, and Cæsarean section and Porro's operation are, of course, contra-indicated, and Laparo-elytrotomy would only result in extracting a dead fœtus through the abdominal wall at the imminent risk of the mother's life. So, also, in cases of the after-coming head after version, in which an unanticipated similar condition was encountered. What about cases of hydrocephalic children, presenting by the breech, as such cases are more apt to do than in the normal fœtus, if the operator finds, as may happen, that he cannot deliver the after-coming head? As Schroeder states, such children, if delivered, do not live; is the attendant to stand by and see that woman die? If he does, is he not as guilty of her death as

though he killed her, when, by the proper use of the means at his control, he can save her life; knowing that he does so even by destroying the child which he was also powerless, by any possible procedure, to save?

He objected to only one statement of the reader, and that was leaving the choice of procedure to the parents. The physician should always use his own judgment, and if not in accord with the wishes of the parents, his duty was to retire from the case, rather than to do what his patient or her friends desired, if contrary to his own judgment.

Dr. Green, of Dorchester, mentioned a case that he was called to in consultation of a deformed woman with a narrow pelvis. The woman was a Catholic, and a clergyman was present, who said if the doctor intended doing craniotomy, he should step out. He had married the woman, after advising strongly against the marriage, and said she should stand the consequences. The woman's pains were strong and she was becoming exhausted. Both the woman and her husband desired that craniotomy should be done. Dr. Green, however, was unwilling, under the circumstances, to do the operation, and telephoned to Boston to an eminent practitioner of abdominal surgery to do Cæsarean section. The practitioner, for good reasons, declined to operate, and advised that craniotomy should be done. The head was then opened with Dixon's perforator, and the woman delivered with the cephalotribe. She made a good recovery, but the narrator felt but small satisfaction in the operation, and was not sure that he should proceed in like manner again under precisely similar circumstances.

Dr. Lyman remarked that it would be far better for the physician to use his own conscience, to which after all he must finally be answerable, in the decision in each case, without reference to theological dogmas, Protestant or Romish. Treat each case according to its indications. It is not possible to decide on any fixed rule, but with the modern improvements in ab-

dominal surgery, the tendency will be increased to try and save both the mother and the child. We must do the best we can in each case, governed by the varying conditions present.

Dr. J. F. Couch, of Somerville, said, when we consider the favorable results of Cæsarean section as compared with craniotomy, there is no justification in regarding the former in such an unfavorable light. In craniotomy, 50 per cent of the mothers and all of the children are lost. In Cæsarean section, according to Harris, when performed during the first twenty-four hours of labor, 70 per cent of the mothers recovered, and over 80 per cent of the children were saved. The tables upon which the opponents of Cæsarean section have based their arguments, were made up from operations performed in the remote ages of medicine, when antisepsis was unknown, at times by unskilled hands, and under unfavorable circumstances. According to Lusk, in one case the operation was performed six days after the membranes had ruptured, and in another case, after peritonitis had set in. Also in several cases, after forceps and version had been tried, and in one case after rupture of the uterus.

We must not deliberately take the child's life. If the mother is so constructed that it is impossible for her to give birth to her child in the natural way, *that is her misfortune*, and she must be prepared to give the child a chance to live, even though at the risk of her own life.

In answer to the speaker, who deprecated mixing theology with medicine, he said that in refusing to perform abortion upon healthy women, the former was actuated by his religious principles, and therefore mixed theology and medicine.

Regarding the case of the hydrocephalic child, and the performance of Cæsarean section by a country practitioner, he claimed that in the former he thought he would be justified in tapping the head, for he would not necessarily destroy life in so doing, while in the latter case, he believed that the mother's chances for

life would be, to say the least, as good in the hands of the country practitioner after Cæsarean section, as after craniotomy. It must be remembered, that in the majority of cases, the latter operation is performed when the head is at or above the brim.

Dr. Wm. L. Richardson said that he did not desire to enter into any discussion with either Dr. Morris or Dr. Couch of theological arguments, as he had understood the question was to be considered only on its merits as viewed from a medical standpoint. He could not help, however, wondering whether those who opposed craniotomy for these theological reasons were also opposed to capital punishment. He was at a loss to see how Dr. Couch had met the class of cases to which he had alluded; and he very much questioned the accuracy of his statistics. His statement that "if the woman is deformed it was so much the worse for her," hardly applied to those cases in which the woman was all right, but the child was deformed. Why should the woman be made to suffer for that, especially as we are unable, even if we let her suffer, to save the child. As for his statement, that "in the case of a country practitioner, the mother's chances for life would be, to say the least, as good after Cæsarean section as after craniotomy," he was forced by personal experience to take an opposite view, as he had seen the latter operation admirably performed by gentlemen, with good results, who would never have attempted the far more serious and complicated operation of Cæsarean section.

Dr. Dixon, in closing the discussion, said there were several points of considerable importance that had escaped the attention they demanded. Whether or no craniotomy should be performed more than once upon the same woman; also, whether the operation should be performed upon a woman the subject of an incurable disease; or upon a woman with a conjugate diameter of less than $2\frac{1}{2}$ inches.

The statistics of Dr. Couch are extremely erroneous.

He stated that a large percentage of mothers die after craniotomy, as many even as after abdominal section. This is not so. In my paper I have given the more recent statistics on the operation of craniotomy, and they are most favorable. Of Merkel's 100 craniotomies from 1877 to 1882 there was a mortality of only six per cent. Bidder did not lose a woman in 32 craniotomies, and Rokitansky, Jr., has published an account of 52 successful cases, occurring in Braun's wards.

Dr. Couch quoted from Dr. Busey's paper that over 50 per cent of women are lost after craniotomy; it is well known that these statistics are erroneous. The idea that more women are saved after abdominal section than after craniotomy, is preposterous. Statistics show that when abdominal section is performed early in the case, when the woman is free from exhaustion, about 70 per cent of the mothers recovered. Statistics show that when craniotomy is performed early it is a matter of extreme rarity that even one woman is lost. Statistics also show that if the woman has an antero-posterior diameter above 2½ inches, and is more or less exhausted, her chances of recovery are very much better after craniotomy than after any variety of abdominal section. The tables from which I have quoted are all of recent date, and in no way go back into the "remote ages of medicine."

It is needless to reply to the statement made by one gentleman that "the mother's chances for life would be, to say the least, as good in the hands of the country practitioner after Cæsarean section as after craniotomy."

Theology or no theology, there is no getting beyond the point that craniotomy should be done when the pelvic diameters permit of the operation being performed, and the child is deformed so that it cannot live but a short time, even if it is born alive; when the parts of the woman are so badly swollen that the head is impacted in the pelvis; and in certain cases of breech presentation and version, all of which have been entered into thoroughly in the paper on this subject.